CLAIMS

1. (Allowed) A robot control method for controlling the operation of a robot so as to pass through a plurality of states corresponding to a predetermined operation, comprising:

determining at least one operational arc between two directly passable states among the plurality of states showing the operation of said robot when passing between the two states,

giving to each of the determined operational arcs a weighting coefficient corresponding to the probability of that operational arc being selected,

selecting on a probable basis one of said operational arcs between said two states when making the operation of the robot pass between said two states based on said weighting coefficients of the operational arcs between said two states, and

controlling the robot so as to perform the operation shown by the selected operational arc when making the operation of the robot pass between said two states; and

controlling the robot so as to return to a first of said two states, wherein said operational arc includes a self operational arc showing the operation of said robot when returning to the first state.

2. (Allowed) A robot control method as set forth in claim 1, when making the operation of the robot pass between two or more states among the plurality of states, operational arcs are selected between each two directly

passable states among said two or more states so that the sum of the weighting coefficients becomes smallest.

3. (Allowed) A robot control method as set forth in claim 1, wherein said [operational arc includes a] self operational arc shows [showing] the operation of said robot when returning from one state among the plurality of states to the same one state.

4. (Allowed) A robot control apparatus for controlling the operation of a robot having a plurality of states corresponding to a predetermined operation,

at least one operational arc being determined between each of any two directly passable states among said plurality of states showing the operation of the robot when passing between said two states, comprising a weighting means for giving to each of the determined arcs of operation a weighting coefficient corresponding to the probability of that operational arc being selected,

an operational arc selecting means for selecting based on probability one of said operational arcs between said two states when making the operation of the robot pass between said two states based on said weighting coefficients of the operational arcs between said two states,

an operating data producing means for producing along with time operating data corresponding to the operation of said robot shown by said selected operational arc, and

controlling means for controlling the operation of the robot based on said produced operating data,

wherein said operating data producing means suppresses the production of said operating data corresponding to a [said] self operational arc before a [said] transition in state and after said transition in state when the states of the robot before the transition of state and after the transition of state coincide.

5. (Allowed) A robot control apparatus as set forth in claim 4, wherein said [operational arc includes a] self operational arc shows [showing] the operation of said robot when returning from one state among the plurality of states to said same one state.

6. (Allowed) A computer-readable medium containing a program for controlling the operation of a robot so as to pass through a plurality of states corresponding to a predetermined operation, the program comprising the steps of:

determining at least one operational arc between two directly passable states among the plurality of states showing the operation of said robot when passing between the two states;

giving to each of the determined operational arcs a weighting coefficient corresponding to the probability of that operational arc being selected;

selecting on a probable basis one of said operational arcs between said two states when making the operation of the robot pass between said two states based on said weighting coefficients of the operational arcs between said two states;

controlling the robot so as to perform the operation shown by the selected operational arc when making the operation of the robot pass between said two states; and

controlling the robot so as to return to a first of said two states, said operational arc including a self operational arc showing the operation of said robot when returning to the first state.

7. (Previously amended) A recording medium having recorded thereon a program for controlling a robot for performing predetermined operations, said robot having drive portions, said program comprising the steps of:

selecting one operation based on a predetermined probability from among operations described in an operational state model that describes operational states of said robot; and

controlling said drive portions so as to perform the selected operation,

wherein said operational state model includes at least one operational arc showing the operation of said robot when passing between the two states is defined, said operational arc including a self-operational arc showing the operation of said robot when returning to a first state of said two states.

8. (Previously amended) A recording medium having recorded thereon a program for controlling a robot for performing predetermined operations, said robot having drive portions, said program comprising the steps of:

defining, in a status transition model that defines a plurality of predetermined states and a plurality of predetermined operations of said robot, between each of any two directly passable states among the plurality of states, at

least one operational arc showing the operation of said robot when passing between the two states;

giving to each of the defined operational arcs a predetermined weighting coefficient;

determining, when passing from a first state to a second state from among the plurality of states, a single transition path based on the weighting coefficients of attainable transition paths; and

controlling, based on the determined transition path, said robot so as to move from the first state to the second state,

wherein said operational arcs include a self-operational arc showing the operation of said robot when returning to a first state of said two states.

9. (Previously amended) A program for controlling a robot for performing predetermined operations, said robot having drive portions, said program comprising the steps of:

randomly selecting one operation from among operations described in an operational state model that describes operational states of said robot; and

controlling said drive portions so as to perform the selected operation,

wherein said operational state model includes at least one operational arc showing the operation of said robot when passing between the operations described in said operational state model, said operational arc including a self-operational arc showing the operation of said robot when returning from said randomly selected one operation.

10. (Previously amended) A program for controlling a robot for performing predetermined operations, said robot having drive portions, said program comprising the steps of:

defining, in a status transition model that defines a plurality of predetermined states and a plurality of predetermined operations of said robot, between each of any two directly passable states among the plurality of states, at least one operational arc showing the operation of said robot when passing between the two states;

giving to each of the defined operational arcs a predetermined weighting coefficient;

determining, when passing from a first state to a second state from among the plurality of states, a single transition path based on the weighting coefficients of attainable transition paths; and

controlling, based on the determined transition path, said robot so as to move from the first state to the second state,

wherein said operational arcs include a self-operational arc showing the operation of said robot when returning to a first state of said two states.

11. (Previously amended) A robot for performing predetermined operations, said robot having drive portions, comprising:

storage means for storing an operational state model that defines operational states of said robot; and

operation control means for selecting one operation based on a predetermined probability from among operations described in said operational state model and for controlling said drive portions so as to perform the selected operation,

said operation state model includes a plurality of states;

between each of any two directly passable states, at least one operational arc showing the operation of said robot when passing between the two states is defined; and

the defined operational arcs are each given a transition probability of the operational arc being selected,

the operational arcs include a self-operational arc showing the operation of said robot when returning to a first state of said two states.

12. (Canceled)

13. (Canceled)

14. (Previously amended) A robot according to claim 11, wherein the transition probabilities are changeable.

15. (Previously amended) A robot for performing predetermined operations, said robot having drive portions, comprising:

storage means for storing a status transition model that defines a plurality of predetermined states and a plurality of predetermined operations of said robot;

wherein, between each of any two directly passable states among the plurality of states, at least one operational arc showing the operation of said robot when passing between the two states is defined;

the defined operational arcs are each given a predetermined weighting coefficient; and

control means for determining a single transition path when passing from a first state to a second state from among the plurality of states, based on the weighting coefficients of attainable transition paths,

wherein said operational arc includes a self-operational arc showing the operation of said robot when returning to a first state of said two states.

16. (Previously added) A robot according to claim 15, wherein the weighting coefficients are dynamically changeable.

17. (Previously Amended) A robot control method for controlling a robot for performing predetermined operations, said robot having drive portions, said robot control method comprising the steps of:

selecting one operation based on a predetermined probability from among operations described in an operational state model that describes operational states of said robot; and

controlling said drive portions so as to perform the selected operation,

wherein said operational state model includes at least one operational arc showing the operation of said robot when passing between the operations described in said operational state model, said operational arc including a self-operational arc showing the operation of said robot when returning from said selected one operation to another operation.

18. (Previously Amended) A robot control method for controlling a robot for performing predetermined operations, said robot having drive portions, said robot control method comprising the steps of:

defining, in a status transition model that defines a plurality of predetermined states and a plurality of predetermined operations of said robot, between each of any two directly passable states among the plurality of states, at least one operational arc showing the operation of said robot when passing between the two states;

giving to each of the defined operational arcs a predetermined weighting coefficient;

determining, when passing from a first state to a second state from among the plurality of states, a single transition path based on the weighting coefficient of attainable transition paths; and

controlling, based on the determined transition path, said robot so as to move from the first state to the second state,

wherein said operational arc includes a self-operational arc showing the operation of said robot when returning from the second state to the first state.